

## Replacement Sheet

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## Human KCC2 polypeptide and DNA sequences

(Mount, D.B. and Song, L. (2002) Brain Res. Mol. Brain Res. 103 (1-2), 91-105; ACCESSION : AF208159)

Human KCC2 polypeptide (SEQ ID NO:2) :

MPNNLTDCEDGDGGANPGDGNPKESSPFINSTDEKGKEYDGKN  
MALFEEEMDTSPMVSSLLSGLANYTNLPQGSREHEEAENNEGKKKPVQAPRMGTFMG  
VYLPCLQNIFGVILFLRLTWVVGIAGIMESFCMVFICCSCTMLTAISMSAIATNGVVP  
AGGSYYMISRSLGPEFGGAVGLCFYLGTTFAGAMYILGTIEILLAYLFPAMAIFKAED  
ASGEAAAMLNNMRVYGTCVLTCMATVVVFGVKYVNKFALVFLGCVILSILAIYAGVIK  
SAFDPPNFPICLLGNRTLSRHGFDVCAKLAWEGNETVTTRLWGLFCSSRFLNATCDEY  
FTRNNVTEIQGIPGAASGLIKENLWSSYLTKGVIVERSGMTSVGLADGTPIDMDHPYV  
FSDMTSYFTLLVGIYFPSVTGIMAGSNRSGDLRDAQSIPTGTILAIATTSAVYISSV  
VLFGACIEGVVLRDKFGEAVNGNLVVGTALWPSPWVIVIGSFFSTCGAGLQSLTGAPR  
LLQAISR DGIVPFLQVFGHGKANGEPTWALLLTACICEIGILIASLDEVAPILSMFFL  
MCYMFVNLAQVQTLRLTPNWRPRFRYYHWTL SFLGMSLCLALMFICSWYYALVAMLI  
AGLIYKYIEYRGAKEWGDGIRGLSLSAARYALLRLEEGPPHTKNWRPQLLVLRVDQ  
DQNVVHPQLLSLTSQKAGKGLTIVGSVLEGTFLFNHPQAQRAEESIRRLMEAEKVKG  
FCQVVISSNLRDGVSHLIQSGGLGGLQHNTVLVGWPRNWRQKEDHQTWRNFIELVRET  
TAGHLALLVTKNVSMFPGNPERFSEGSIDVWWIVHDGGMMLLPFLLRHHKVWRKCKM  
RIFTVAQMDDNSIQMKKDLTTFLYHLRITAEVEVVMHESDISAYTYEKTLMVEQRSQ  
ILKQMH LTKNEREREIQSITDES RGSIRRKNPANTRLRLNVPEETAGDSEEKPEEEVQ  
LIHDQSAPSCPSSSPSPGEEPEGEGETDPEKVHLTWTKDKSVAEKNKGPSVPSSEGIK  
DFFSMKPEWENLNQSNVRRMHTAVRLNEVIVKKS RDAKLVL LNMPGPPRNRNGDENYM  
EFLEVLTEHLDRVMLVRGGGREVITIYS

Human KCC2 DNA (SEQ ID NO:1) :

1 atgcccaaca acctgacgga ctgcgaggac ggcgatgggg gagccaaccc gggatgatggc  
61 aaccccaagg aaagcagtcc cttcatcaac agcaccgaca cagagaaggg aaaggagtat  
121 gatggcaaga acatggcctt gtttgaggag gagatggaca ccagccctat ggtgtcctcc  
181 ttgctcagtg gcctggccaa ctacaccaac ctgccccagg gaagtaggga gcatgaagag  
241 gcagaaaaca atgagggtgg aaaaaagaag ccggtgcagg cccacgcat gggcaccttc  
301 atgggcgtgt acctgccgtg cctgcagaac atctttggcg tcatcctctt cctgcggctc  
361 acctgggtgg tgggcattgc aggcattcat gagtccttct gcatggtgtt catctgctgc

FIG. 9A

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421 tectgtacga tgctcacggc catctccatg agtgcaattg caacgaatgg tgttgtgcct  
481 gctggtggct cctactacat gatttccagg tctctgggccc cagagtttgg ggggtgccgtg  
541 ggcctctgct tctacctggg cactaccttt gcaggagcca tgtacatcct gggcaccatc  
601 gaaatcctgc tggcttacct cttcccagcc atggccatct tcaaggcaga agatgccagt  
661 ggggaggcag cagccatgct gaacaacatg cgtgtttacg gcacctgtgt gctcacctgc  
721 atggccactg tgggtgttgt ggggtgtcaag tatgtcaaca agtttgccct tgtcttccctg  
781 ggttgtgtca tctctccat cctggccatc tatgttgggg tcatcaagtc tgccttcgac  
841 ccacccaact tcccgatctg cctcctgggt aaccgcacgc tgtctcgcca tggctttgat  
901 gtctgtgcca agctggcttg ggaaggaaat gagacgggtga ccacacggct atggggcctt  
961 ttctgtcctt ctgcttccct caacgccacc tgtgatgaat acttcacccg aaacaatgtc  
1021 acagagatcc agggcatccc tgggtgctgcc agtggcctca tcaaagagaa cctctggagc  
1081 tctacctga ccaagggcgt gattgtggag aggagtggga tgacctcggg gggcctggcc  
1141 gatggcactc ctatcgacat ggaccacctt tatgtcttca gtgatatgac ctctacttc  
1201 accctgctgg ttggcatcta cttcccctca gtcacaggga tcatggctgg ttctaaccgc  
1261 tctggggacc tgagggatgc ccagaagtca atccccactg gcacctcctt ggccatcgcc  
1321 accacctctg ctgtctacat cagctccgtt gttctgtttg gggcctgcat tgagggggtc  
1381 gtcctgcggg acaagtttgg cgaagctgtg aatggcaacc tctgtggggg cactctggcc  
1441 tggccatctc catgggtaat tgtcatcgga tcttcttctt ccacctgtgg ggctgggctg  
1501 cagagcctca cgggggcccc acgcctgctg caggccatct cgagggatgg cattgtgccc  
1561 ttctgcagg tctttggcca tggcaaggcc aatggagagc cgacctgggc cctgctcctg  
1621 actgcctgca tctgcgagat tggcatcctc attgcatccc tcgacgaggt ggcccccatc  
1681 ctctctatgt tcttctgat gtgctacatg tttgtgaatc tggcctgtgc agtgacagc  
1741 ctgctgagga caccacaactg gagggcacgc tttcgatatt accactggac cctctccttc  
1801 ctgggcatga gcctctgect ggccctcatg ttcactctgt cctgggtatta tgcactggta  
1861 gccatgctca ttgctggact catctacaag tacattgagt accgtggggc agagaaggag  
1921 tggggcgatg ggatacgagg tctgtctctc agtgccgctc gctatgccct cttacgcctg  
1981 gaggaagggc cccacacac caagaactgg agggcacagc tgcctgtgct ggtgcgtgtg  
2041 gaccaagacc agaattgtggg gcacccccag ctgctctcac tgacctcca gctgaaggca  
2101 gggaagggcc tgaccatcgt gggctctgtc cttgagggca ctttcttggg aaatcatcca  
2161 caggcccagc gggcagaaga gtctatcagg cgcctgatgg aggcagagaa ggtgaagggc  
2221 ttctgccagg tgggtgatctc ctccaacttg cgtgatggcg tgtcccatct gatccagtcc  
2281 gggggcctcg gggggctgca gcacaacact gtgcttgttg gctggccccg caactggcgc  
2341 cagaaggaag atcatcagac gtggaggaac ttcattgagc tgggtccggga aaccacagct  
2401 ggccacttag ccctgctggg caccaagaac gtttccatgt ttctgggaa cctgagcgc  
2461 ttctctgagg gcagcatcga cgtttgggtg attgtgcacg atggaggcat gctcatgctg  
2521 ctgcccctcc tgcctgcggc ccacaaggte tggcggaagt gcaagatgcg tatcttccat  
2581 gtggcccaga tggatgacaa tagcatccag atgaagaagg atctgaccac atttctgtat  
2641 catttacgca tcaactgcgga ggtcgagggt gtggagatgc atgagagcga catctcagct  
2701 tacacctatg agaagacgtt ggtgatggag cagcgttccc agatcctcaa acagatgcat  
2761 ttaaccaaga atgagcggga gcgggagatc cagagtatca cagatgagtc acgaggctca  
2821 atccggagaa agaattccagc caacacgcgg ctccgcctga acgtcccaga agagacggct  
2881 ggtgacagtg aagagaagcc agaggaggag gtgcagctga tccacgatca gagtgtctcc  
2941 agctgccccca gcagctcccc gtccccaggg gaggagcctg agggggaagg ggagacagat  
3001 ccggagaagg tgcattctac ctggaccaag gacaagtcgg tggcagagaa gaataagggc  
3061 cccagtccctg tctcctctga gggcatcaag gacttcttca gcatgaagcc ggagtgggag  
3121 aacttgaacc agtccaacgt gcggcgcctg cacacggccg tgcggctgaa cgaggctcat  
3181 gtgaagaaat cccgggacgc caagcttgtt ttgctcaaca tgcctgggccc tccccgcaac  
3241 cgcaatgggtg atgaaaacta catggagttt ctgcaggctc tcacagagca cctggaccgg  
3301 gtgatgctgg tccgcggtgg tggccgagag gtcattacca tctactcctg agaaccagg  
3361 cctgccaccc gggcccagc gcgcccggcc cgcggctccg gagccctcgc cgcgcccccc  
3421 gccgctgtca ccgtttacat acagaccctg tgcccgtgtc ctggccccctt acccgcctgc  
3481 ctgaagcccg gaggccacgc ctgttggggc tgattcggag agggcgcccc gccgcgcaga  
3541 gaccagagct cctcagtgcc agtttggccc ctgggtcttc gctgcccttt ttctaagccc  
3601 ggcctcgtct cgcgggagga gacgctgcaa taaaggttgg gagaaggcgc ggaaaggaga  
3661 ggagctgggg ccttggggac cccaggttag tccatgcggc ccattcctcc ccttcccact  
3721 cccgcccgcg tctcgtctct gcgctcctcc ggcgctgtc cctggctccc ggcgcccgcg  
3781 agggcccgcg ggtgggaagg ccgcgcttgc cgtctccgcc gccccttctc gccgagcgt  
3841 ggggcccgcg cgccgagcc tatacatagt gtacaggaga catcgctgtt atttttaacg

FIG. 9B

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3901 tccccatatt tatgtgacta gaagcgcaac agactttctcg ccatagtcga gctctcccgc  
3961 tggggggcact gcggggaggc gaggcctcgg gaagctgaat ttcccttgac gtccaagagt  
4021 ttgagagcga aagtgtctta ggcccaggcg ggggtcgtgg cctcgttccc tcgacacctc  
4081 cgtcctgctc tcgcctcttc gccctttccg cgcgcccttg gcttcccacc ctcccttcca  
4141 gtccttttcc gagatgaggt gagacaagg tccaactttt cctggattcg cctcccagcg  
4201 gacgtgagct tccactgcgg ctgcagagac gogagcaacc tcttctcatc ggctcttatg  
4261 caagttgggg ccaggatagg ggaggggtgc tcctcaagag gaagaaaccg agaggcccgc  
4321 gccccaccga ggaagccccg ccccggtgcc ttcgctgggg agcaggcgtc tctcctcagt  
4381 cggcttgctc cctgctcccc gtatcccatg gctcctcgcc aaagactgaa attgtggagc  
4441 tggagggcgc cccctccccg gagtttctc cctgggacaa gtgagggagg agggggccga  
4501 ttctggttta ggggcccggc ccaactgagag gcccagagc cgcctgtgat gttcctcccc  
4561 cgtcccatc tggcagctcc tgtctgcct gagggacca gccgccttct ccgtgctctg  
4621 gggccgggccc tcgctgctta gcagcggcct ctagctccgt ctcccgggga cctgggcctg  
4681 agggagggct ggagtcagca cgcgctttgt ccttagcgcc tgtctgctct cctctaacta  
4741 ggacccaggc cctttggctt cccagctca tccttgccc ttcgctcca ccagcctggt  
4801 ctgagggctg ctctgtcctt agagaaggcg cggtgggcgg gttcccttcc cctagggcac  
4861 attactaagg gggtcaggca ctgcatgctc gttccagcac catctgggac tgggtacagt  
4921 acctccagcc ccagggccct gacctgcga cctagcttga catctcacgc acctcccaga  
4981 gctggcgcca ctgagtaatc cggacctcac cacctctttt cctttgagcc caaggcagag  
5041 ctagagctgg agctggcgcc acccagacag cgtcagggtg ggctggggta ggtttggagg  
5101 tctgccagtt acgccaagtc ccctctgaga ttcatcagg ggactggata gattctttca  
5161 ggtactcaat caggaagctg gaggtgttag acaccagccc cctgcatcct tcagtagacc  
5221 tccctctgaa caccacagcc aggtcctgcc ttctgggggc ctgaatatc cagagctgat  
5281 gtgatgggct gtgcagaagg gggctgtatc aacatcaatt agggaaccaa agttgcacta  
5341 tctgggcccc gattgtctgg ttggcaagag caaagtttcc gttgatgaaa cagacatccc  
5401 acaacaaaaa cccaagtttt ctgtgctaca tgtgcaatat ttgttatgaa tgttatcaca  
5461 agtcattcat caagttatct ttataatcac tgtagttaga tgtttcatgt ccattcaagt  
5521 gacttttatt ctgagtgcga tatttcaata gccttgtagt gataactagt gttgcttttg  
5581 tttagatgat ctatgtgcag ggcaatgcaa tgaagttgaa accccttggg aataggagag  
5641 gttgcaaacc aaatcaagag tatttattac tattactgct attattatta ggcctgcctt  
5701 taattttcag tgtaagtgtt cagtatgccg catcctgcct cagtattgat cttgtgttct  
5761 ttgtgccaat atgaaaagga gaggggttgt tctttccttt attgttgaat gctccattt  
5821 aatgctttat ggcttttact gtattacttt tttagactcc cgtctgcaca aaatgcaata  
5881 aaaataattt tattataaaa aaaaaaa

FIG. 9C

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Mouse KCC2 (K-Cl cotransporter [Slc12a5])  
polypeptide and DNA sequence

(Ehringer, M.A., et al. (2001) Mamm. Genome 12 (8), 657-663;  
ACCESSION: AF332064)

Mouse KCC2 polypeptide (SEQ ID NO:4) :

MLNNLTDCEDGDGGANPGDGNPKESSPFINSTDTEKGREYDGRN  
MALFEEEMDTSPMVSSLLSGLANYTNLPQGSREHEEAENNEGKKKPQAPRMGTFMG  
VYLPCLQNIQFVILFLRLTWVVGIAGIMESFCMVFICCSCTMLTAISMSAIATNGVVP  
AGGSYYMISRSLGPEFGGAVGLCFYLGTTFAGAMYILGTIEILLAYLFPAMAIKFAED  
ASGEAAAMLNNMRVYGTCVLTCMATVVFVGKYNKFALVFLGCVILSILAIYAGVIK  
SAFDPPNFPICLLGNRTLSRHGFDVCAKLAWEGNETVTTRLWGLFCSSRLNATCDEY  
FTRNNVTEIQGIPGAASGLIKENLWSSYLTGKVIVERRGMPVGLADGTPVDMHPYV  
FSDMTSYFTLLVGIYFPSVTGIMAGSNRSGDLRDAQSIPTGTILAIATTSVYISSV  
VLFACIEGVVLRDKFGEAVNGNLVVGTLAWPSPWVIVIGSFFSTCGAGLQSLTGAPR  
LLQAISRDLGIVPFLQVFGHGKANGEPTWALLLTACICEIGILIASLDEVAPILSMFFL  
MCYMFVNLAQVQTLRLTPNWRPRFRYYHWTLSTFLGMSLCLALMFICSWYYALVAMLI  
AGLIYKYIEYRGAKEWGDGIRGLSLSAARYALLRLEEGPPHTKNWRPQLLVLRVDQ  
DQNVVHPQLLSLTSQKAGKGLTIVGVSLEGTFLDNHPQAQRAEESIRRLMEAEKVKG  
FCQVVISSNLRDGVSHLIQSGGLGGLQHNTVLVGWPRNWRQKEDHQTWRNFIELVRET  
TAGHLALLVTKNVSMFPGNPERFSEGSIDVWWIVHDGGMMLLPFLLRHHKVWRKCKM  
RIFTVAQMDDNSIQMKDLTTFYHLRITAEVEVEMHESDISAYTYEKTLMVMEQRSQ  
ILKQMHLLTKNEREREIQSITDESRSIRRKNPANPRLRLNVPEETACDNEEKPEEEVQ  
LIHDQSAPSCPSSSPGEEPEGERETDPEVHLTWTKDKSVAEKNKGPSVPSSEGIKD  
FFSMKPEWENLNQSNVRRMHTAVRLNEVIVNKSRLAKLVLLNMPGPPNRNGDENYME  
FLEVLTEQLDRVMLVRGGGREVITIYS

Mouse KCC2 DNA (SEQ ID NO:3) :

1 gagcaagcga gcgagcggag aaggcgggca gaggggcgcg ggcgaagcgg cgcagccatc  
61 ccgagcccg cgcgcgcag ccaccatgct caacaacctg acggactgcg aggacggcga  
121 tgggggagcc aaccccggtg atggcaacct caaagagagc agtcccttca tcaacagcac  
181 ggacacggag aagggcagag agtacgatgg caggaacatg gccctgtttg aggaggagat  
241 ggacaccagc cccatggtat cctccctgct cagtgggctg gccaaactaca ccaacctacc  
301 ccagggaagt agagagcatg aagaagcaga aaataatgag ggtggaaaaa agaagccggt

FIG. 10A

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361 gcaggctcct cgaatgggca ccttcatggg tgtgtacctg ccgtgcctgc agaacatctt  
421 tgggtgtcatc ctcttcctgc ggctcacgtg ggtgggtggc atcgcgggca tcatggagtc  
481 cttctgtatg gtcttcattt gctgctcctg tacgatgctc acagccattt ccagtatgct  
541 aatcgcaacc aatgggtgtt tgcctgctgg tggctcgtac tacatgattt ccaggctctt  
601 gggcccggag tttggggggc ccgtgggcct ctgcttctac ctgggcacca cctttgctgg  
661 ggctatgtac atccttggca cgatcgagat cctgctggct tatctcttcc cagctatggc  
721 catcttcaag gcagaagatg ccagtgggga ggcggccgcc atgctgaaca acatgcgggt  
781 gtatggcacc tgtgtgctca cctgcatggc caccgttgct tttgtgggtg tcaagtacgt  
841 caacaagttt gccttgggtc tcctgggttg cgtcctcctg tccatcctgg ccattctatg  
901 aggggtcatc aagtctgcct tcgacccacc caatttcccg atctgcctcc tggggaaccg  
961 cacgctgtct cgccatggct ttgatgtctg tgccaagctg gcttgggaag gaaatgagac  
1021 agtgaccaca cggctctggg gccttttctg ctctcccgc ctctcaatg ccacctgtga  
1081 tgagtacttc acccgaaaca atgtcacaga gatccagggc attcctgggtg ctgccagtgg  
1141 tctcatcaaa gagaacctgt ggagttctta cctgaccaa ggggtgattg tcgagaggcg  
1201 tgggatgccc tctgtgggcc tggcagacgg tacccccgtg gacatggacc acccctatgt  
1261 cttcagtgat atgacctcct acttcacct gctcgttggg atctacttcc cctcagtcac  
1321 agggatcatg gctggctcaa accgatctgg agacctgcgg gatgcccaga agtctatccc  
1381 tactggaact atcctggcca ttgctaccac ctctgctgct tacatcagct ctgttgttct  
1441 gtttggagcc tgcacagagg gggctcgtctt acgggacaag tttggggaag ctgtgaatgg  
1501 caacttgggt gtgggcaccc tggcctggcc ttctccctgg gtcacgtca taggctcttt  
1561 cttctctacc tgtggggctg gattacagag cctcacaggg gccccacgtc tgctgcaggc  
1621 catctcccgg gatggcatag tgcccttctt gcaggctctt ggccatggca aagctaattg  
1681 agagccaacc tgggcgctgc tgctgactgc ctgcatctgt gagatcggca tcctcatagc  
1741 ctccctggat gaggtcgccc ctatacttct catgttcttc ctaatgtgtt acatgtttgt  
1801 gaacttggct tgtgcgggtc agacgctgct gaggacacc aactggaggc cacgatttct  
1861 ctattaccac tggactctct ccttcctggg catgagcctc tgccctggcc tcatgttcat  
1921 ttgctcctgg tactacgeac tgggtggccat gctcattgce ggactcattt ataagtacat  
1981 cgagtaccgg ggggcggaga aggagtgggg ggatggaatc cgaggcctgt ctctcagtc  
2041 agcacgctat gctctcttgc gcctggagga aggacctccg catacgaaga actggaggcc  
2101 ccagctgctg gtgctgggtc gtgtggacca ggatcagaac gtgggtgcatc cgcagctgct  
2161 ctccctgacc tcccagctca aggcaggga ggcctgacc attgtgggt cctccttga  
2221 gggcaccttt ctggacaacc atccacaggc tcagcgggca gaggagtcta tcaggcgcct  
2281 gatggaggct gagaagggtg agggcttctg ccaggtagtg atctcctcca acctgcgtga  
2341 tgggtgtgtcc cacctgatcc agtctggggg cctcggggga ttgcaacaca ataccgtgct  
2401 ggtgggctgg cctcgcaact ggaggcagaa ggaggatcat cagacatgga ggaacttcat  
2461 cgaactggtc cgggaaacta cagccggcca cctcgccctg ctggtcacca agaattgttc  
2521 catgtttccc gggaacctg agcgcttctc ggagggcagc attgacgtgt ggtggattgt  
2581 gcacgacggg ggcattgctc tgctgctgcc ctctcctgct cgacaccaca aggtctggag  
2641 gaaatgcaaa atgcggatct tcaccgtggc ccagatggac gataacagta tccagatgaa  
2701 gaaggacctg accacgttct tgtaccactt acgcattact gcagagggtg aggtgggtga  
2761 gatgcatgag agcgacatct cggcatacac ctacgagaag acattagtaa tggagcaacg  
2821 atctcagatc ctcaaacaga tgcacctcac caagaacgag cgggaacggg agatccagag  
2881 catcacagac gagtctcggg gctccattcg gaggaagaat ccagccaacc cccggctccg  
2941 cctcaatgtt cccgaagaga cagcgtgtga caatgaggag aagccagagg aggaggtgca  
3001 gctgatccat gaccagagtg ctcccagctg ccctagcagc tcgccatctc caggggagga  
3061 gcccgagggg gagagggaga cagaccaga ggtgcatctt acctggacca aggataagtc  
3121 agtggcagag aagaataaag gcccagtc cgtctcctcc gagggcatca aggacttctt  
3181 cagcatgaag ccggagtggg aaaacttgaa ccagtccaat gtacggcgca tgcacacagc  
3241 tgtgcggctg aacgaggtca tcgtgaataa atctcgggat gccaaagctg ttttgctcaa  
3301 catgcccggg cctccccgca accgcaatgg ggatgaaaac tacatggaat tcttggaggt  
3361 cctcactgag caactggacc gggatgatgt ggtccgcggg ggcggccgag aggtcatcac  
3421 catctactcc tgaaggccag gacctgccac tccggcccga gcgcgccgg cccgcggccc  
3481 ccagagccct cgcgcgcct cccgcgcct gtcaccgttt acataagacc cagttgccca  
3541 tgccctggcc cctttccttc ccgctgcctg cagccctgag gccttgcccg tcggggctga  
3601 cccgcagggc ggcccgtgag gcccttttct tgagcctggc ctgcgccgc cggagc

FIG. 10B

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## Rat KCC2 polypeptide and DNA sequences

(Payne, J.A., et al., (1996) J. Biol. Chem. 271 (27), 16245-16252; Gillen, C.M., et al., (1996) J. Biol. Chem. 271 (27), 16237-16244; ACCESSION: U55816)

Rat KCC2 polypeptide (SEQ ID NO:6) :

MLNNLTDCEDGDGGANPGDGNPKESSPFINSTDEKGREYDGRN  
MALFEEEMDTSPMVSSLLSGLANYTNLPQGSKEHEEAENNEGKKKPVQAPRMGTFMG  
VYLPCLQNI FGVILFLRLTWVVG IAGIMESFCMVFICCSCTMLTAISMSAIATNGVVP  
AGGSYYMISRS LGPEFGGAVGLCFYLGTTFAGAMYILGTIEILLAYLFPAMAI FKAED  
ASGEAAAMLNNMRVYGTCVLTCMATVVFVG VKYV NKFALVFLGCVILSILAIYAGVIK  
SAFDPPNFPICLLGNRTLSRHGFDVCAKLAWEGNETVTTRLWGLFCSSRLLNATCDEY  
FTRNNVTEIQGIPGAASGLIKENLWSSYLTKGVIVERRGMP SVGLADGTPVDM DHPYV  
FSDMTSYFTLLVGIYFPSVTGIMAGSNRSGDLRDAQS IPTGTILAIATTS AVYISSV  
VLFGACIEGVVLRDKFGEAVNGNLVVGTLAWPSPWVIVIGSFFSTCGAGLQSLTGAPR  
LLQAISR DGIVPFLQVFGHGKANGEPTWALLLTACICEIGILIASLDEVAPILSMFFL  
MCYMEVNLACAVQTLLRTPNWRPRFRYYHWTLSFLGMSLCLALMFICSWYYALVAMLI  
AGLIYKYIEYRGAEKEWGDGIRGLSLSAARYALLRLEEGPPHTKNWRPQLLVLRVDQ  
DQNVVHPQLLSLTSQLKAGKGLTIVG SVLEGTFLDNHPQAQRAEESIRRLMEAEKVKG  
FCQVVISSNLRDGVSHLIQSGGLGGLQHNTVLVGWPRNWRQKEDHQTWRNFIELVRET  
TAGHLALLVTKNVSMFPGNPERFSEGSIDVWVIVHDGGM LMLLPFLLRHHKVWRKCKM  
RIFTVAQMDDNSIQMKKDLTTFLYHLRITAEVEV VEMHESDISAYTYE KTLVMEQRSQ  
ILKQMH LTKNEREREIQSITDES RGSIRRKNPANTRLRLNVPEETACDNEEKPEEEVQ  
LIHDQSAPSCPSSSPSGEEPEGEGETDPEKVHLTWTKDKSAAQKNKGPSPV SSEG I K  
DFFSMKPEWENLNQSNVRRMHTAVRLNEVIVNKS RDAKLVL LNMPGPPRNRNGDENYM  
EFLEVLTEQLDRVMLVRGGG GREVITIYS

Rat KCC2 DNA (SEQ ID NO:5) :

1 ccgctccacg gagagcaagc gacagagctc gagcaagcga gcgagcggcg aaggcgggca  
61 gaggggcgcg ggcgaagagg cgcagccatc ccgagcccgg cgccgcgcag ccaccatgct  
121 caacaacctg acggactgcg aggacggcga tgggggagcc aaccgggtg acggcaatcc  
181 caaggagagc agccccttca tcaacagcac ggacacggag aaggggagag agtatgatgg  
241 caggaacatg gccctgtttg aggaggagat ggacaccagc cccatggtat cctccctgct

FIG. 11A

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301 cagtgggctg gccaaactaca ccaacctgcc tcagggaagc aaagagcacg aagaagcaga  
361 aaacaatgag ggcggaaga agaagccggt gcaggcccca cgcattggga ccttcattggg  
421 cgtgtacctc ccgtgcctgc agaactctt tgggtgtatc ctctttctgc ggctcacttg  
481 ggtggtggga atcgcaggca tcatggagtc cttctgcatg gtcttcatct gctgctcctg  
541 cacgatgctc acagccattt ccatgagcgc aattgcaacc aatggtgttg tgcctgctgg  
601 tggctcctac tacatgattt ccaggtctct gggcccgag tttgggggag ccgtgggcct  
661 ctgcttctac ctgggcacta cctttgctgg ggctatgtac atcctgggca ccatcgagat  
721 cctgctggct tacctcttcc cagcgatggc catcttcaag gcagaagatg ccagtgggga  
781 ggcagccgcc atgttgaata acatgcgggt gtatggcacc tgtgtgctca cctgcatggc  
841 caccgtagtc tttgtgggag tcaagtacgt gaacaagtgt gccctggctt tccgtgggtg  
901 cgtgatcctc tccatcctgg ccatctacgc aggggtcctc aagtctgctt tccatccacc  
961 caatttcccg atttgccctc tggggaaccg cacgctgtct cgcctatggg ttgatgtctg  
1021 tgccaagctg gcttgggaag gaaatgagac agtgaccaca cggctctggg gcctattctg  
1081 ttctcccgc ctctcaatg ccacctgtga tgagtacttc acccgaaaca atgtcacaga  
1141 gatccagggc attcctgggt ctgcaagtgg cctcatcaaa gagaacctgt ggagtctcta  
1201 cctgaccaag ggggtgatcg tggagaggcg tgggatgccc tctgtgggca tggcagatgg  
1261 tacccccgtt gacatggacc accctatgtt cttcagtgat atgacctcct acttcacctt  
1321 gcttgttggc atctatttcc cctcagtcac agggatcatg gctggctcga accggtccgg  
1381 agacctgcgg gatgccaga agtctatccc tactgggaact atcttggcca ttgctacgac  
1441 ctctgctgtc tacatcagct ctgttgttct gttcggagcc tgcctcgaag gggctgctct  
1501 acgggacaag tttggggaag ctgtgaatgg caatctggtg gtgggcaccc tggcctggcc  
1561 ttctccttgg gtcattgtca taggctcttt cttctctacc tgcggagctg gactacagag  
1621 cctcacaggg gcccacgcc tgctgcaggc catctcccgg gatggcatag tgccttctct  
1681 gcaggtcttt ggccatggca aagccaacgg agagccaacc tgggcgctgc tgctgactgc  
1741 ctgcatctgt gagatcggca tctcatcgc ctccctggat gaggtcggcc ctatcctttc  
1801 catgttcttc ctgatgtgtt acatgtttgt gaacttggct tgcgcggtgc agacctgct  
1861 gaggacgcc aactggaggc cacgcttccg atattaccac tggacctctt cctcctggg  
1921 catgagcctc tgcctggccc tgatgttcat ttgctcctgg tattatgcgc tggtagctat  
1981 gctcatcgct ggcctcatct ataagtacat cgagtaccgg ggggcagaga aggagtgggg  
2041 ggatgggatc cgaggcctgt ctctcagtc agctcgctat gctctcttgc gtctggagga  
2101 aggacccccg catacaaaga actggaggcc ccagctactg gtgctggtgc gtgtggacca  
2161 ggaccagaac gtggtgcacc cgcagctgct gtccttgacc tcccagctca aggcagggaa  
2221 gggcctgacc attgtgggct ctgtccttga gggcaccttt ctggacaacc accctcaggc  
2281 tcagcgggca gaggagtcta tccggcgctt gatggaggct gagaagggtg agggcttctg  
2341 ccaggtagtg atctcctcca acctgcgtga cgggtgtgct cacctgatcc aatccggggg  
2401 cctcgggggc ctgcaacaca acactgtgct agtgggctgg cctcgcaact ggcgacagaa  
2461 ggaggatcat cagacatgga ggaacttcat cgaactcgtc cgggaaacta cagctggcca  
2521 cctcgccttg ctggtcacca agaattgttc catgttcccc gggaacctg agcgtttctc  
2581 tgagggcagc attgacgtgt ggtggatcgt gcacgacggg ggcattgctc tgctgttgcc  
2641 cttcctcctg cgtcaccaca aggtctggag gaaatgcaaa atgcggatct taccgtggc  
2701 gcagatggat gacaacagca ttcagatgaa gaaagacctg accacgtttc tgtaccactt  
2761 acgaattact gcagagggtg aagtcgtgga gatgcacgag agcgacatct cagcatacac  
2821 ctacgagaag acattggtta tggacaacag ttctcagatc ctcaaacaga tgcacctcac  
2881 caagaacgag cgggaacggg agatccagag catcacagat gaatctcggg gctccattcg  
2941 gaggaagaat ccagccaaca ctcggtcctg cctcaatgtt cccgaagaga cagcttgtga  
3001 caacgaggag aagccagaag aggaggtgca gctgatccat gaccagagtg ctcccagctg  
3061 ccctagcagc tcgccgtctc caggggagga gcctgagggg gagggggaga cagaccaga  
3121 gaaggtgcat ctacactgga ccaaggataa gtcagcggct cagaagaaca aaggccccag  
3181 tcccgtctcc tcggagggga tcaaggactt cttcagcatg aagccggagt gggaaaactt  
3241 gaaccagtcc aacgtgcggc gcatgcacac agctgtgcgg ctgaacgagg tcatcgtgaa  
3301 taaatcccgg gatgccaaat tgggtgttgc caacatgccc gggcctcccc gcaaccgcaa  
3361 tggagatgaa aactacatgg aattcctgga ggtcctcact gagcaactgg accgggtgat  
3421 gctggtccgc ggtggtggcc gagaggtcat caccatctac tctgaaggc caggacctgc  
3481 cactccggcc cgagcgagcc cggcccgagg ccccgagacc ctcccgccgc ctccccgcg  
3541 ctgtcaccgt ttacataaga cccggttgcc cgtgccttgg cctcttccc tcccgctgcc  
3601 tgcgggcccg aggccttgcc cgtcggggct gacccggagg gcggcccggt ggcccctttt  
3661 ctgagcccg cctcgccttg ccggagtaga cgttgcaata aaggtggcga ggcggcggtg  
3721 agaggagcgg aaccgtggtc ccgggccggg gagccccgag cccgtccctc cccacgcccc

FIG. 11B

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3781 gccgcgctcc ccccggaacc tggtcgctga gcccgggcgc cgctcggtcg cgctatacat  
3841 agtgtacagg agacatcgag tgtattttta atgtcccat atttctgtaa actagaaacg  
3901 caacggactc ctgccacagg ccgcgctctc ccgctgcgg gcgccagga aggcggagac  
3961 ccgggaagcc aggtttccct gcgctccga gctgagagcc aagtgttta aggccggcgc  
4021 tctcctttcc ctttcctgtc cacggcccg gcttccctct cttccctcca gttcttggcg  
4081 aacacaggtg aagccctgcc cgggtgcctc gtggaggagc aggcgtctct cctctgttgg  
4141 cttgccgcct gctccccctg tcccgtggct cctcgccaaa gactgaattt gtggagctgg  
4201 agggcacacc ctccccactt tccttcctgg gacaggtgag gggccaatgc cagtctaggg  
4261 gccgactcac aggaggcctc gcgcagcctc ttgggtccca ctctgcaagt cctgcctggg  
4321 gacccagccc ccctggtggg tctggggcgg agctttgctg cctagcagca agtccttagt  
4381 tactgtctcc agataccagg acctggagta gggaatggag tcatatgggt tcagttgttc  
4441 ctggcgcttc tctgccccct gctccccctc tccccctctc gtaggacaca aggactttgg  
4501 ctttcttaac tcattccttg cgcttccgct ccaccacgcc cacctgtggg gaggagccct  
4561 cagccctaga gaggcgtttg gctgggttccc ttccccaggg gcacgttact aagaggacag  
4621 gactgcatg ctcttttaag cgccctctgg gactgggtac agtgccctca gcccagggc  
4681 cctggtctgc gcacctagt agacatcatt gccactcca gggccagggc cactagctga  
4741 cctcaccacc tttttccttg agcccaaggc agagagagct gcagctgggt ccatctagac  
4801 aggtcaagt gtggccagt gcagggtcg agggccactg ccctgttgct tggctcagga  
4861 cctctctgag atttgatggg gactggatat tcttcagggt agtagccatc aagtcggaag  
4921 tggtggaccc aggacctgac attccttcaa gactgccctc cettgctgtg gttttgcctt  
4981 ttggggcaag agaggggctg ggcaaacggg gaggaggcag tatcaacacc gattagggaa  
5041 ccaaagttgc actacctggg ccagcctct ggttggaag agcaaagttt ctggtgatga  
5101 aaacaaacag cccacaacaa ccccccccc ccggttttct gtgctccatg tgcaatatat  
5161 gttatgaacc ttgtgtcgtt caagtcacct ttataatcac ttagctaga tgttccatgt  
5221 ccatccaggt gactttactc tgagtgaat atttcaatag cctggtagtg agaagagtgt  
5281 tgcttttgtt tcagccgacc tatgtgcagg gcaatgcaat gcagtccaaa acccttgtaa  
5341 ataggagagg ttgcaagcca aatcaagagt atttatcgtt attactatta ttattaggcc  
5401 tgcctttaat tttagtgttt cggtatctcg catcctgcct cggattgat cgtgtgttct  
5461 ctgtgccaat atgcaaagga gaggatcagt tctttccttt actgttgaat gctccattt  
5521 actgctttaa ggcttttact gtgttcattt tttagatacc tgtctg

FIG. 11C